



APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER NUMBER
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1804 23

DATE MAILED:

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

☒ Responsive to communication(s) filed on 3/25/96

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire _____ month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-95 is/are pending in the application.

Of the above, claim(s) 1-16, 19, 21-84 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 17, 18, 20, 85-95 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some ☐ None of the CERTIFIED copies of the priority documents have been received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

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This application should be reviewed for errors.

Claims 1-16, 19, 21-84 are withdrawn from consideration; claim 95 is newly added; claims 17, 18, 20, 85-95 are active and examined in this Office Action.

The declaration of Dr. Reynolds, filed March 16, 1996, is acknowledged, has been considered and is addressed, below.

The provisional rejection of claims 17, 18, 20 and 85-95 under the judicially created doctrine of obviousness type double patenting as being unpatentable over claims 1-29 of copending application Serial No. 08/376,062; claims 1-17 of copending application Serial No. 08/359,945; claims 1-10 of copending application Serial No. 08/338,730, is maintained. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter overlaps. The claims of the applications are drawn to methods of proliferating neural stem cells in culture. Applicants have stated they will attend to this rejection in an appropriate manner upon indication of allowable subject matter. The examiner acknowledges the notification of other copending applications listed on page 7 of the instant amendment.

The rejection of claims 17, 18, 20 and 85 under 35 U.S.C. 112, first paragraph, is withdrawn.

The rejection of claims 17, 89, 91 and 93 under 35 U.S.C. 102(b) as being anticipated by Temple is withdrawn in view of the amendments to the claims.

The rejection of claims 17, 18, 20 and 85-94 under 35 U.S.C. 112, first paragraph, is withdrawn in view of the amendments to the claims. The declaration of Dr. Reynolds describing the results of the controls is sufficient to overcome the rejection.

The rejection of claims 17, 18, 20 and 85-94 under 35 U.S.C. 112, second paragraph, regarding "progeny" and "passaging" is withdrawn in view of the amendments to the claims.

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The rejection of claims 17, 18, 20 and 85-95 under 35 U.S.C. 103 as being unpatentable over Anchan taken with Boss is maintained. Applicant's arguments, filed March 25, 1996, have been considered but not found to be persuasive. Applicants have argued the references individually and not the combination. Such arguments will not be addressed.

Applicants have argued that neither Boss nor Anchan have taught the proliferation of multipotent neural stem cells. However, contrary to such arguments, Boss teaches the proliferation of progenitor cells. See Abstract (Boss) and further arguments below.

Applicants have argued that at the time the claimed invention was made, researchers in the field of neurobiology were of the belief that neural stem cells were not found in adult mammalian CNS. However, the claims are not so limited. Inclusion of that limitation ("adult mammalian neural tissue") in claim 17 would overcome the rejection. The use of fetal/embryonic tissue is obvious over the cited prior art. Applicant's arguments earlier presented directed to the Science article focussed on the demonstration that a single, multipotent neural stem cell obtained from adult neural tissue can, in the presence of a growth factor, proliferate and form undifferentiated cells capable of being subcultured, proliferated and undergoing differentiation. In addition, see page 17 of this amendment, the quotation from the Science article, wherein Reynolds acknowledges the ability of the method to create a plentiful source of undifferentiated CNS cells from the adult.

Applicants have argued that Anchan does not show that a single cell grown according to their methods is multipotent; and further that it would be expected that a primary cell culture containing this many embryonic and neonatal retinal cells would contain both neuronal and glial progenitor cells and that under

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appropriate culture conditions some of the progenitor cells would divide prior to terminal differentiation. However, Anchan discloses on page 923, column 2, that tissue was dissociated to obtain single cells. Further, if applicants are claiming plating by limiting dilution, the claim does not claim that limitation. See in particular page 933 of Anchan wherein Anchan discusses that Temple discloses that single neuroepithelial cells remain multipotent in vitro and can give rise to large clones of neurons and glia (column 1, middle paragraph). The claims currently claim neural tissue and therefore read on "neuroepithelial tissues".

Applicants have argued that Anchan does not disclose production of glial cells. However, contrary to such arguments, Anchan discloses production of glial cells on page 927. Regarding the arguments concerning proliferation, Anchan discloses production of more cells than he started with and therefore discloses proliferation. Anchan discloses on page 927 that the flat cells divided and exhibited nestin reactivity, thereby indicating the renewal of neural stem/progenitor cells.

Applicants have argued that Anchan does not disclose production of glial in addition to neurons as was seen when embryonic tissue was cultured using applicant's method and quote from the Science article. However, the Science article uses adult striatum and the claims are not so limited.

Anchan discloses that the cells in his culture can be classified into two basic types: the round, neuronal cells or the flat, glia-like cells and discloses that both the flat cells and the round neuronal cells are increasing in number of the 6 days in culture, consistent with the possibility that neuroepithelial cells continue to proliferate and generate neurons.

Applicants have argued that Boss does not teach clonal expansion of a single cell. However, the claims do not claim clonal expansion of a single cell.

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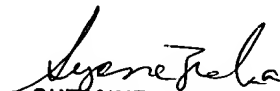
No claim is allowed. However, a terminal disclaimer would overcome the double patenting rejections. Inclusion of the suggested limitations above would overcome the art rejection.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Papers related to this application may be submitted to Group 1800 by facsimile transmission. Papers should be faxed to Group 1800 via the PTO FAX center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG (30 November 15, 1989). The CM1 Fax Center number is (703) 308-4227.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Suzanne Ziska, Ph.D., whose telephone number is (703)308-1217. In the event the examiner is not available, the examiner's supervisor, Ms. Jacqueline Stone, may be contacted at phone number (703) 308-3153.


SUZANNE E. ZISKA
PRIMARY EXAMINER
GROUP 1800